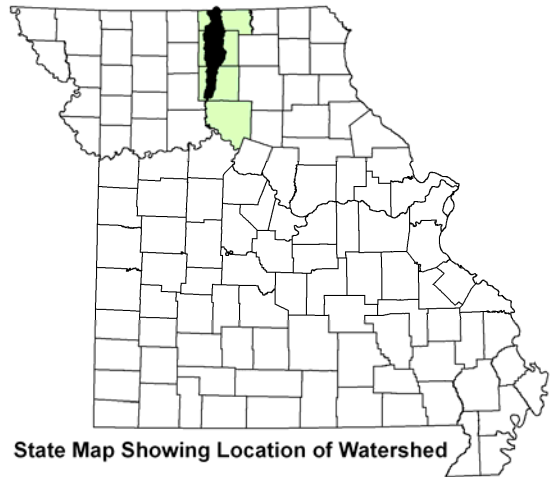Missouri Department of Natural Resources
Total Maximum Daily Load Information Sheet

Locust Creek

Water Body Segment at a Glance:

County:	Putnam/Chariton
Nearby Cities:	Milan
Length of impaired segment:	84 miles
Length of impairment within segment:	36.4 miles
Pollutant:	Bacteria
Source:	Rural Nonpoint Source
Water Body ID:	606

State Map Showing Location of Watershed

Scheduled for TMDL development: 2013

Description of the Problem

Beneficial uses of Locust Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation – Category B
- Secondary Contact Recreation
- Public Drinking Water Supply

Use that is impaired

- Whole Body Contact Recreation – Category B

Standards that apply

- Missouri's Water Quality Standards at 10 CSR 20-7.031(4)(C) state that the *E. coli* bacteria count shall not exceed 126 colonies per 100 milliliters of water (126 col/100 mL) for Category A and 206 col/100 mL for Category B waters. This count is the geometric mean during the recreational season (April 1- October 31) in waters designated for whole body contact recreation.

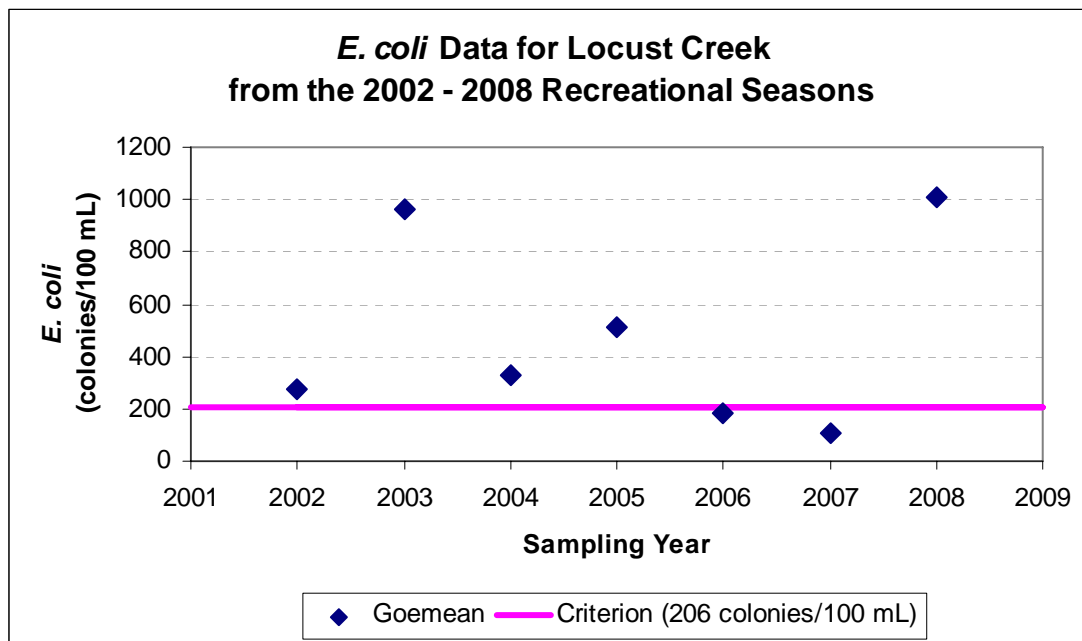**Background Information and water quality data**

Locust Creek is a prairie stream in northern Missouri. It is part of the Grand River watershed. Locust Creek is designated as Category B for the whole body contact recreation use, which means it has places deep enough for total immersion (i.e., swimming), but they may be on private lands or inaccessible to the public.

Excessive amounts of fecal bacteria in surface water used for recreation are an indication of an increased risk of pathogen-induced illness to humans. Infections due to pathogen-contaminated waters include gastrointestinal, respiratory, eye, ear, nose, throat and skin diseases. *E. coli* are bacteria found in the intestines of warm blooded animals and used as indicators of the risk of waterborne disease from pathogenic (disease causing) bacteria or viruses.   Most *E. coli* strains are harmless, but some can cause serious illness in humans and are occasionally responsible for product recalls. The harmless strains are part of the normal flora of the intestines, and can benefit their hosts by preventing the establishment of pathogenic bacteria within the intestine[1,2]. Missouri's bacteria criteria are based on specific levels of risk of acute gastrointestinal illness. The levels of risk correlating to these criteria are no more than eight illnesses per 1,000 swimmers in fresh water.

The bacteria impairment in Locust Creek is based on data gathered by the U.S. Geological Survey from 2002-2008. The geometric mean of the recreation season data exceeded the criterion for *E. coli* of 206 col/100 mL for Category B waters in one of the last three years of available data, which constitutes an impairment.

People can protect themselves from waterborne illness by avoiding contact with contaminated water. However, when swimming anywhere, it is wise to take commonsense precautions. These include washing hands before eating, showering after swimming and avoiding exposure to questionable water if you have open cuts or wounds.

***E. coli* Data for Locust Creek from the 2002 - 2008 Recreational Seasons**

- ◆ Goemean
- ── Criterion (206 colonies/100 mL)

[1] Hudault S, Guignot J, Servin AL (July 2001). "*Escherichia coli* strains colonising the gastrointestinal tract protect germfree mice against *Salmonella typhimurium* infection". *Gut* **49** (1): 47–55
[2] Reid G, Howard J, Gan BS (September 2001). "Can bacterial interference prevent infection?". *Trends Microbiol.* **9** (9): 424–8.

Map Showing the Impaired Segment of Locust Creek in Putnam and Sullivan counties, Mo., and Sample Site Locations

– – – – Impaired Segment → Direction of flow
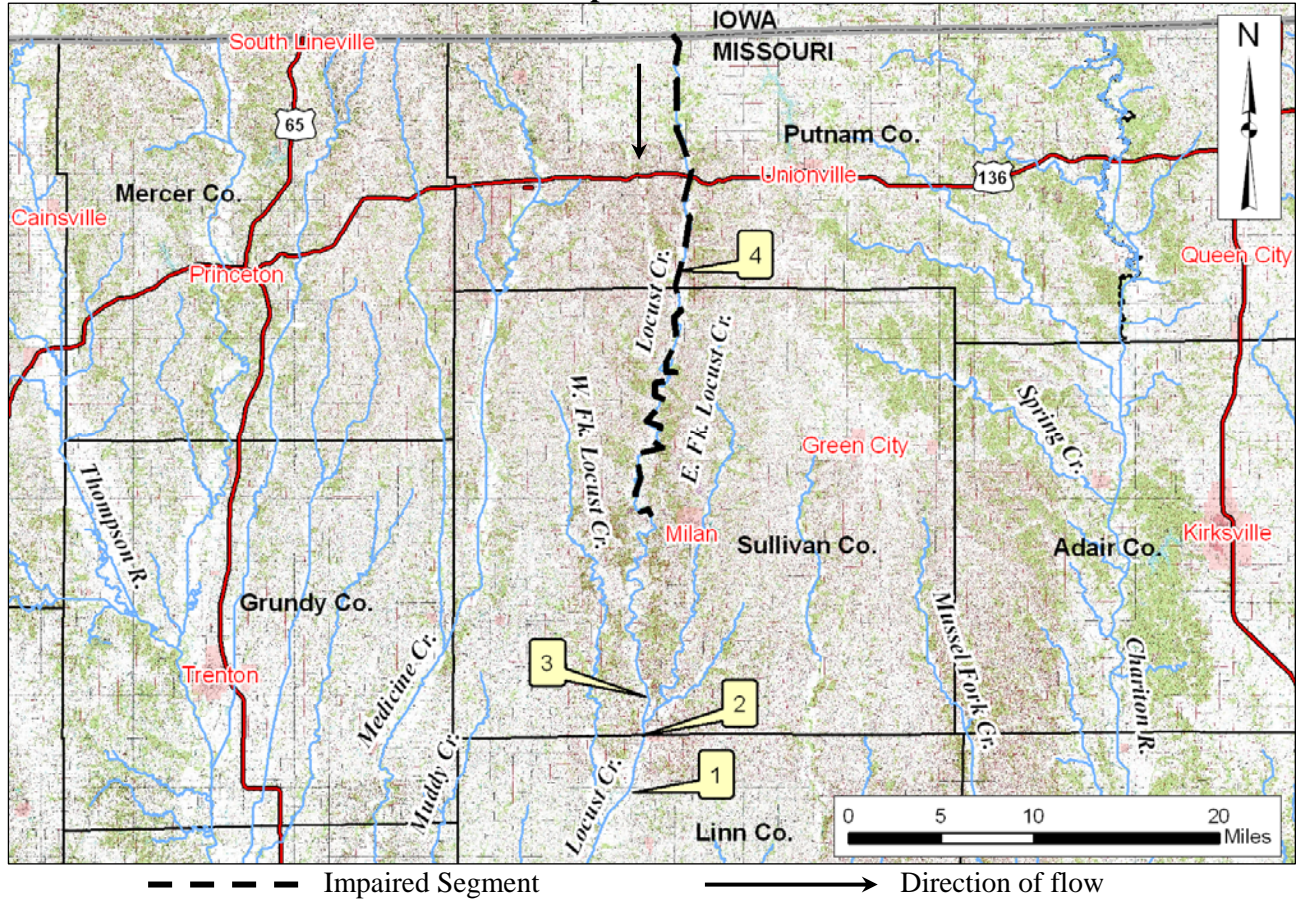
Sample Sites
1 – Locust Creek at Delco Road
2 – Locust Creek at State Highway MM
3 – Locust Cr. at Rocky Ford Access
4 – Locust Cr. near Unionville

For more information call or write:
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Water Protection Program
P.O. Box 176, Jefferson City, MO 65102-0176
1-800-361-4827 or 573-751-1300 office
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